

ing to Mr. Bentham constantly sterile, and although they are furnished with an apparently perfect ovarium containing two or three ovula, he has observed it to fall off with the calyx, and that the legumes are produced both in *hypogæa* and the other species by the female flowers, whose structure is very different, being destitute of either calyx, corolla, or stamina; but from between two small bractes, resembling those occurring at the base of the sterile flowers, proceeds a straight rigid stipes or torus, which speedily becomes reflexed and elongated, and is terminated by what appears to the naked eye a sharp point, which, when examined with a glass, discloses at its extremity a truncated, somewhat concave and dilated stigma, and within it is found a cell bearing two or three anatropous ovula placed transversely one above the other. After fecundation, when the extremity has nearly reached the ground, it begins to swell, but remains continuous with the stipes or torus, without any articulation even at the maturity, when the legume is usually broken off with more or less of laceration.

We subjoin the characters of the species given by Mr. Bentham.

1. *A. hypogæa*, annua; caule erecto vel adscendente ramoso piloso, foliolis obovatis obtusis mucronatis, supra glabris, subtus pilosulis.
2. *A. glabrata*, perennis, glabra, vel hinc inde pilosula, adscendens; stipularum parte libera elongatâ ad foliorum par infimum subattingente, foliolis oblongo-ellipticis obtusis mucronatis basi rotundatis brevissime petiolulatis, supra glabris, subtus vix pilosulis. Brasilia.
3. *A. pusilla*, perennis; caule procumbente pilosulo, stipularum parte libera brevissima, foliolis ovatis oblongisve acutiusculis mucronatis basi rotundatis, supra glabris, subtus adpresse pubescentibus subsericeis. Brasilia.
4. *A. prostrata*, perennis; caule prostrato villoso, stipularum parte libera elongata at foliolorum par infimum non attingente, foliolis ovatis oblongisve obtusis mucronatis basi rotundatis, supra glabris, subtus adpresse villosis. Brasilia.
5. *A. villosa*, perennis, caule prostrato villoso, stipulis foliolorum par infimum superantibus, foliolis lato-ovatis rigidis mucronatis, supra pubescentibus, subtus pilosis. Brasilia.
6. *A. tuberosa*, perennis, caule brevi subsimplici, villoso, petiolis abbreviatis, foliolis obovatis oblongisve obtusis muticis basi angustatis rigidis marginatis reticulatis glabris subciliatis. Brasilia.

ROYAL SOCIETY OF EDINBURGH.

18th Dec. 1837.—Dr. Hope, V. P. in the Chair.

Read, Professor Traill's remarks on the Ossiferous Caves of Cefn, in Denbighshire.

These caves, which were first described by the present Bishop of Norwich in 1832, and have since been more fully explored by Dr.

Cumming of Denbigh, were visited by the author in the autumn of 1837. The principal cave is a fissure in a grand mural escarpment of the mountain limestone of Wales, about two miles and a half south-west of St. Asaph, and occurs half way down the precipice, which seems to be about 250 feet in height. It forms at that point the southern boundary of the limestone, which constitutes the basis of the Vale of Clwyd; and is divided from the extensive greywacke slate formation of that county by the narrow picturesque vale of Cyffredin, through which the river Elwy flows.

The hill of Cefn consists of parallel beds of limestone, which the extensive quarries on its southern flank show to have a regular dip of about 8° . This cave was discovered in 1830 to contain earthy deposits exceedingly rich in bones of mammifera: and, since that period, they have been much employed as a manure by Mr. Lloyd, the proprietor. During the excavations for this purpose, many teeth and fragments of larger bones, so entire as to be readily recognised, have been obtained. An interesting collection of them is preserved at Cefn House, and some are in the hands of the author. Among the former, he noticed part of the humerus and a molar tooth of a rhinoceros, several teeth and bones of the hyæna, and beautiful teeth, and a considerable portion of the lower jaw, of a bear. Dr. Traill has in his possession two phalanges and two teeth of a bear; a phalanx of a large *Felis*, resembling the tiger; parts of the tibia, and of the astragalus, and a phalanx of a large *Bos*; portions of the metacarpus of an immense ruminant, apparently a deer; besides a variety of fragments, not so easily ascertained on account of their mutilated state.

The materials which filled up the fissure or principal cave almost to its roof, are regularly stratified. They formed together a mass of earthy matter twelve feet in thickness. The first or upper bed consists of layers of clay and very fine sand, two feet thick. The second bed is of plastic clay-marl, containing many small water-worn pebbles, chiefly of clay-slate, two feet thick. The third is a stratum so filled with broken and comminuted bones, as apparently to consist entirely of that material, two feet thick. It is in this bed that all the bones mentioned, except those of the bears, are found. Immediately below is the fourth bed, consisting of plastic marl-clay, with many water-worn pebbles of slate and compact felspar, with angular pieces of limestone; this is also two feet thick. The fifth bed consists of fine sand, which seldom contains any pebbles. It rests on the floor of the cavern, and has usually a depth of four feet. In one part of the cave, however, Dr. Cumming detected below this bed a floor of hard stalagmite, about sixteen feet square; and on breaking it up, bones

of bears were found mingled with sand and large water-worn pebbles of the rocks already mentioned.

One of the most interesting observations which occurred to the author during his investigation was, that the stratified earthy materials filling the cave were *not deposited horizontally, but had an evident dip*, which he remarked was in the same direction and apparent inclination as that of the limestone rock itself. The important inference he drew from this is, that the stratified materials were deposited in the cave before the limestone received its present position; and he conjectured, that the animals whose remains are here preserved may have existed even before the last great disturbances of our carboniferous system of rocks. Should similar phenomena be observed in other caves, it would perhaps carry back the existence of mammiferous animals to geological epochs more ancient than generally supposed; and account for the occurrence of diluvial materials in similar situations, without the startling supposition of extensive degradations of solid rocks, by causes apparently inadequate to produce them. Another cave exists in the same neighbourhood, in which bones have also been found. It is near the village of Pont Newydd. In its bottom was found a collection of hyæna bones, in a mass of calc-sinter and gravel, four feet in thickness.

The author illustrated his paper by a view of the cliffs of Cefn, and by a plan and sections of the principal cave.

PROCEEDINGS OF THE ROYAL ACADEMY OF BERLIN.*

Feb. 23, 1837.—M. von Buch read a paper on the Jura in Germany.

The German Jura in Swabia and Franconia is an uninterrupted continuation of the Swiss Jura. Its external form is that of a glacis of a fortification, with a gentle descent towards the exterior, and a steep fall towards the interior. Opposite to it stands the similar range of the French Jura, on the right side of the Sâone upwards, and on the left sides of the Meurthe and Moselle downwards. The steep declivities of these elevated ranges are turned towards each other, and the space, which they for the most part surround, is in the northern parts almost completely inclosed by older grauwacke mountains. The interior of this immense bason contains the greatest portion of Burgundy and Lorraine, the whole of Alsace, Swabia, Franconia, and Hessa, and includes no mountains of the Jura formation. For this reason M. von Buch considers the chains to have been originally produced in their present form, with their canal-like valleys,

* Translated from the Bericht über die Verhandlungen der königl. Akademie der Wissenschaften zu Berlin.